

IN THE CLAIMS

Please cancel Claims 1-14 without prejudice.

1-14. (Cancelled)

15. (Original) A method for determining the presence of at least one magnetic particle (15), the method comprising the steps of:

- generating an ac magnetic field in the vicinity of a magnetic sensor element (11),

- sensing with the magnetic sensor element a magnetic property of the at least one magnetic particle (15) which magnetic property is related to the ac magnetic field, characterized in that the frequency of the ac magnetic field is chosen at 100 Hz or above.

16. (Original) A method as claimed in claim 15, characterized in that the frequency is chosen at a value where the thermal white (Nyquist) noise of the magnetic sensor element (11) is dominant over the $1/f$ noise of the magnetic sensor element (11).

17. (Original) A method as claimed in claim 15, characterized in that an amplifier (21) is connected to the magnetic sensor element (11) and the frequency of the ac magnetic field is chosen at a value where the thermal white noise at the output of the amplifier (21) is dominant over the $1/f$ noise at the output of the amplifier (21).

18. (Previously Presented) A method as claimed in claim 15, characterized in that the direction (30) of the generated ac

magnetic field is mainly perpendicular to the plane of the magnetic sensor element in the direct neighborhood of the magnetic sensor element.

19. (Previously Presented) A method as claimed in claim 15, further comprising the steps of:

- performing a calibrating measurement in absence of magnetic particles (15), which calibrating measurement measures the magnetic field generated by the magnetic field generator (12).

- using the obtained calibrating measurement value and subtract that value from the actual measurement value obtained when a measurement is carried out in the presence of magnetic particles (15).

20. (Original) A method for determining a concentration of magnetic particles as a function of location of the magnetic particles by using the device of claim 9, wherein each of the magnetic field generators (12) generates an ac magnetic field with a different modulation (20a, 20b) frequency, the output signal of the magnetic sensor element (11) is demodulated resulting in signals with different frequency, from which signals the number of magnetic particles and the position is determined.

21. (Original) A method for determining the surface concentration and the bulk concentration of the magnetic particles by using the device of claim 13, wherein the plurality of magnetic field generators generate an ac magnetic field component normal (30) to the in-plane directions of the magnetic sensor element (11), from which magnetic field component the position of the magnetic particles is determined.

22. (Original) A method as claimed in claim 21, wherein each of the magnetic field generators generate an ac magnetic field with different modulation frequencies, the output signal of the magnetic sensor element is demodulated resulting in signals with different frequency, from which signals the number of magnetic particles and the position is determined.

23. (Previously Presented) Use of a method according to claim 15 for molecular diagnostics biological sample analysis, or chemical sample analysis.